

REMARKS

The present application includes pending claims 1-19. By this Amendment, claims 1, 7, 12, and 16 have been amended. It is respectfully submitted that the pending claims define allowable subject matter.

Claims 1-4, 6-9, 11-13, 15-17, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 4,610,021 ("Peschmann '021") in view of United States Patent No. 5,442,673 ("Rand"). Claims 5, 10, 14, and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Peschmann '021 in view of Rand and United States Patent No. 4,531,226 ("Peschmann '226"). The Applicant respectfully traverses these rejections for the reasons set forth hereafter.

The Applicant first turns to the rejection of claims 1-4, 6-9, 11-13, and 19 as being unpatentable over Peschmann '021 in view of Rand. Peschmann '021 relates generally to "a high speed multiple section computed-tomographic (CT) medical scanning system, and more particularly... to an X-ray beam collimation structure." *See* Peschmann '021 at Column 1, lines 5-8. Figure 5 of Peschmann '021 "is a perspective view of the source collimator *rings* with support means." *See* Peschmann '021 at Column 4, lines 21-23 (emphasis added). "In this embodiment three fixed collimator rings 72, 74 and 76 are provided and one movable ring 78 is provided." *See id.* at Column 4, lines 23-26. As shown in Peschmann '021, multiple collimators are used.

However, Peschmann '021 does not teach, nor suggest, a collimator "having at most two collimator rings," as recited in claims 1, 7, 12, and 16. Instead, in order to achieve beams of different width, Peschmann '021 uses multiple collimators, i.e., at least five collimator rings, and "by moving the detector array housing (which acts as a

collimator) and the movable collimator ring towards each other, the fan beam defined therebetween is reduced in thickness and position.” *See id.* at Column 4, lines 27-31. *See also* Figures 2 (structure above reference numeral 30), and Figure 3 (reference numerals 37, 38, 39, and 40).

Peschmann ‘021 is similar to the systems described in the Background section of the present application, which states, in part, “[I]n order to collimate the x-ray fan beam at different widths, *multiple* collimators having different sized apertures were typically needed, thereby increasing the cost of the system.” *See* App. No. 10/064,182 at paragraph [04] (emphasis added). In the Background section, the Applicant cited United States Patent 4,352,021 (the “Boyd ‘021 patent”) as an example of a multiple collimator configuration. Figure 2 of the Boyd ‘021 patent shows an almost identical collimator configuration as that of Peschmann ‘021. *Compare* Figure 10 of the Boyd ‘021 patent and Figure 3 of Peschmann ‘021. Thus, Peschmann ‘021 and the Boyd ‘021 patent are both examples of collimators having multiple collimators having different sized apertures. However, neither Peschmann ‘021, nor the Boyd ‘021 patent include a collimator “having at most two collimator rings,” as recited in claims 1, 7, 12, and 16 of the present application. Thus, if the collimator assembly of Peschmann ‘021 is relied upon to reject the claims of the present application, the Applicant respectfully submits that the claims should be in condition for allowance because the collimator assembly of Peschmann ‘021 does not have *at most* two collimator rings.

The Examiner noted, however, that “it would have been obvious... to incorporate the device of Peschmann et al. with the collimator of Rand et al.” The collimator of Rand, however, does not include “first and second sets of apertures aligned to collimate

said x-ray fan beam into a first collimated beam having a first width and a second collimated beam having a second width,” as recited, for example, in claim 1 of the present application. Instead, Rand discloses a collimator having a single aperture.

The septum [300] is generally in the form of a perforated disc positioned substantially parallel to and in a space between the plane defined by the moving source of x-rays on target 302 and the plane defined by the x-ray detector array 8, so that only those x-rays passing through its perforation (or aperture) 304 reach detector array 8.

See Rand at column 3, lines 20-26 (*See also* Figure 3).

Figure 3 of Rand clearly shows only one aperture 304, but not first and second sets of apertures, as recited in the claims of the present application.

As shown in FIG. 3, for a 6 mm slice width the optimum beam spot position is defined by a “z-ray” A which passes from the right edge of the “6 mm” slice beam spot position on the target 302 (i.e., a portion of the target ring which is furthest from the septum 300), to the left edge of the collimator slot 306 (defined by end face 310 of adjustable ring 308) and then close to the right edge 310 of septum aperture 304....

See id. at column 4, lines 27-35. Thus, Rand describes a system having a single aperture.

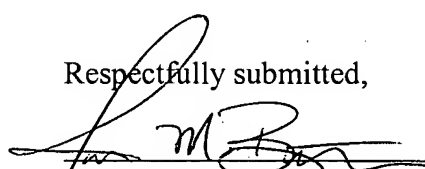
The size of a resulting slice is determined by a position of a beam spot on the target ring, which then determines the reflection of the beam through the aperture 304. However, Rand does not teach, nor suggest, a collimator having “first and second sets of apertures.” Thus, if the collimator assembly of Rand is relied upon, the claims of the present application should be in condition for allowance.

The combination of Peschmann '021 and Rand discloses either a collimator assembly having more than two collimator rings (if the assembly of Peschmann '021 is relied upon), or a collimator assembly having only one aperture (if the Rand collimator assembly is relied upon). Thus, the combination of Peschmann '021 and Rand alone, or in combination with one another, does not render the claims of the present application unpatentable. The Applicant respectfully submits that claims 1-19 of the present application should, therefore, be in condition for allowance at least for these reasons.

The Applicant respectfully submits that claims 1-19 should be in condition for allowance for at least the reasons discussed above. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited to contact the Applicant. The Commissioner is authorized to charge any necessary fees or credit any overpayment to the to the Account No. 07-0845.

Dated: February 18, 2004

Respectfully submitted,



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